



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2017-0771; Product Identifier 2016-NM-212-AD]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: We propose to supersede Airworthiness Directive (AD) 2015-09-07, which applies to all The Boeing Company Model 787 airplanes. AD 2015-09-07 requires a repetitive maintenance task for electrical power deactivation. Since we issued AD 2015-09-07, Boeing has developed new software for the generator control unit (GCU) that addresses the software counter overflow anomaly that prompted the issuance of AD 2015-09-07. This proposed AD would require installing the new GCU software. This proposed AD would also remove certain airplanes from the applicability. We are proposing this AD to address the unsafe condition on these products.

DATES: We must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.

- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this NPRM, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminister Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; telephone 562-797-1717; Internet <https://www.myboeingfleet.com>. You may view this referenced service information at the FAA, Transport Standards Branch, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221. It is also available on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2017-0771.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2017-0771; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Stephen Oshiro, Aerospace Engineer, Systems and Equipment Section, FAA, Seattle ACO Branch, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6480; fax: 425-917-6590; email: Stephen.Oshiro@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2017-0771; Product Identifier 2016-NM-212-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

Discussion

On April 23, 2015, we issued AD 2015-09-07, Amendment 39-18153 (80 FR 24789, May 1, 2015) (“AD 2015-09-07”), for all The Boeing Company Model 787 airplanes. AD 2015-09-07 requires a repetitive maintenance task for electrical power deactivation on Model 787 airplanes. AD 2015-09-07 resulted from the determination that a Model 787 airplane that has been powered continuously for 248 days can lose all alternating current (AC) electrical power due to the GCUs simultaneously going into failsafe mode. This condition is caused by a software counter internal to the GCUs that will overflow after 248 days of continuous power. We issued AD 2015-09-07 to prevent loss of all AC electrical power, which could result in loss of control of the airplane.

Actions Since AD 2015-09-07 Was Issued

The preamble to AD 2015-09-07 specifies that we consider the requirements “interim action” and that the manufacturer is developing a modification to address the

unsafe condition. That AD explains that we might consider further rulemaking if a modification is developed, approved, and available. Since we issued AD 2015-09-07, Boeing has developed new software for the Model 787 GCU that addresses the software counter overflow anomaly that prompted the issuance of AD 2015-09-07. Installation of the new software eliminates the need for performing the repetitive maintenance actions (i.e. repetitive electrical power deactivations) that were mandated by AD 2015-09-07 as a means of mitigating the GCU software counter overflow anomaly.

Related Service Information under 1 CFR part 51

We reviewed the following service information.

- Boeing Service Bulletin B787-81205-SB240063-00, Issue 002, dated June 7, 2016, which describes procedures for installing operational program software (OPS) into each of the six GCUs and doing a software check. This service information specifies to concurrently accomplish the following two service bulletins:

- Boeing Service Bulletin B787-81205-SB280018-00, Issue 001, dated April 17, 2014, which describes procedures for installing fuel quantity management program software and doing a software check.

- Boeing Service Bulletin B787-81205-SB420006-00, Issue 003, dated October 15, 2015, which describes procedures for installing common interface control document 9.3 software and doing a software check.

- Boeing Multi Operator Message MOM-MOM-15-0248-01B, dated April 19, 2015; and Boeing Multi Operator Message MOM-MOM-15-0248-01B(R1), dated April 20, 2015. This service information describes procedures for electrical power deactivation of Model 787 airplanes. These documents are distinct due to editorial revisions.

This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

FAA's Determination

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

Proposed AD Requirements

This proposed AD would retain all requirements of AD 2015-09-07. However, this proposed AD removes certain airplanes from the applicability of AD 2015-09-07, which affects all Model 787 airplanes. The new software specified in Boeing Service Bulletin B787-81205-SB240063-00, Issue 002, dated June 7, 2016, has already been installed on airplanes having line numbers 4, 5, 10, 12-19, 22, 369, 371, 373, and 375-552 and will be installed in production on line numbers 553 and subsequent. Line numbers 1, 2, and 3 are no longer in service. Therefore, this proposed AD only affects airplanes identified in Boeing Service Bulletin B787-81205-SB240063-00, Issue 002, dated June 7, 2016.

This proposed AD would also require installing the new software and accomplishing applicable corrective actions specified in the service information described previously. For information on the procedures and compliance times, see this service information at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2017-0771.

The phrase "corrective actions" is used in this proposed AD. Corrective actions correct or address any condition found. Corrective actions in an AD could include, for example, repairs.

Differences Between this Proposed AD and the Service Information

Boeing Service Bulletin B787-81205-SB240063-00, Issue 002, dated June 7, 2016, states that this revision has no effect on airplanes on which Issue 001 was previously done. However, this proposed AD will require additional action for Group 2 airplanes. Operators of Group 2 airplanes will be required to accomplish the actions in Boeing Service Bulletin B787-81205-SB420006-00, issue 003, dated October 15, 2015, on those airplanes.

Costs of Compliance

We estimate that this proposed AD affects 47 airplanes of U.S. registry. We estimate the following costs to comply with this proposed AD:

Estimated costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Electrical power deactivation (actions retained from AD 2015-09-07)	1 work-hour X \$85 per hour = \$85 per deactivation cycle	\$0	\$85 per deactivation cycle	\$3,995 per deactivation cycle
Software installation (new proposed action)	5 work-hours X \$85 per hour = 425	\$0	\$425	\$19,975

Estimated costs for concurrent actions

Action	Labor cost	Parts cost	Cost on U.S. operators
Install fuel quantity management program software	1 work-hour X \$85 per hour = \$85	1	Up to \$3,995
Install common interface control document 9.3 software	Up to 15 work-hours X \$85 per hour = \$1,275	1	Up to \$59,925

¹We have received no definitive data that would enable us to provide parts cost estimates for the concurrent actions specified in this proposed AD.

According to the manufacturer, some of the costs of this proposed AD may be covered under warranty, thereby reducing the cost impact on affected individuals. We do not control warranty coverage for affected individuals. As a result, we have included all available costs in our cost estimate.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

This proposed AD is issued in accordance with authority delegated by the Executive Director, Aircraft Certification Service, as authorized by FAA Order 8000.51C. In accordance with that order, issuance of ADs is normally a function of the Compliance and Airworthiness Division, but during this transition period, the Executive Director has delegated the authority to issue ADs applicable to transport category airplanes to the Director of the System Oversight Division.

Regulatory Findings

We have determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that the proposed regulation:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by removing Airworthiness Directive (AD) 2015-09-07, Amendment 39-18153 (80 FR 24789, May 1, 2015), and adding the following new AD:

The Boeing Company: Docket No. FAA-2017-0771; Product Identifier 2016-NM-212-AD.

(a) Comments Due Date

The FAA must receive comments on this AD action by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

This AD replaces AD 2015-09-07, Amendment 39-18153 (80 FR 24789, May 1, 2015) (“AD 2015-09-07”).

(c) Applicability

This AD applies to The Boeing Company Model 787-8 and 787-9 airplanes, certificated in any category, as identified in Boeing Service Bulletin B787-81205-SB240063-00, Issue 002, dated June 7, 2016.

(d) Subject

Air Transport Association (ATA) of America Code 24, Electrical power.

(e) Unsafe Condition

This AD was prompted by the determination that a Model 787 airplane that has been powered continuously for 248 days can lose all alternating current (AC) electrical power due to the generator control units (GCUs) simultaneously going into failsafe mode.

This condition is caused by a software counter internal to the GCUs that will overflow after 248 days of continuous power. We are issuing this AD to prevent loss of all AC electrical power, which could result in loss of control of the airplane.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Retained Repetitive Maintenance Task: Electrical Power Deactivation with a New Reference to Terminating Action

This paragraph restates the actions required by paragraph (g) of AD 2015-09-07, with a new reference to terminating action. At the latest of the times specified in paragraphs (g)(1), (g)(2), and (g)(3) of this AD, accomplish electrical power deactivation on the airplane, in accordance with step 2) in “DESIRED ACTION” of Boeing Multi Operator Message MOM-MOM-15-0248-01B, dated April 19, 2015; or Boeing Multi Operator Message MOM-MOM-15-0248-01B(R1), dated April 20, 2015. The main and auxiliary power unit (APU) batteries do not need to be disconnected when performing the electrical power deactivation. Repeat the electrical power deactivation thereafter at intervals not to exceed 120 days until the software installation required by paragraph (h) of this AD is done.

(1) Within 120 days after the last electrical power deactivation in accordance with step 2) in “DESIRED ACTION” of Boeing Multi Operator Message MOM-MOM-15-0248-01B, dated April 19, 2015; or Boeing Multi Operator Message MOM-MOM-15-0248-01B(R1), dated April 20, 2015.

(2) Within 120 days after the date of issuance of the original certificate of airworthiness or the date of issuance of the original export certificate of airworthiness.

(3) Within 7 days after May 1, 2015 (the effective date of AD 2015-09-07).

(h) New Requirement of this AD: Software Installation

Within 12 months after the effective date of this AD: Install new operational program software (OPS) into each of the six GCUs, do a software check, and do all applicable corrective actions, in accordance with the Accomplishment Instructions of Boeing Service Bulletin B787-81205-SB240063-00, Issue 002, dated June 7, 2016. Do all applicable corrective actions before further flight. Accomplishment of the actions required by this paragraph on all six GCUs on an airplane terminates the requirements of paragraph (g) of this AD for that airplane.

(i) New Requirement of this AD: Concurrent Actions

(1) For Group 1 airplanes as identified in Boeing Service Bulletin B787-81205-SB240063-00, Issue 002, dated June 7, 2016: Prior to or concurrently with accomplishing the actions required by paragraph (h) of this AD, do the actions specified in paragraph (i)(1)(i) and (i)(1)(ii) of this AD.

(i) Install new fuel quantity management program software and do a software check, in accordance with the Accomplishment Instructions of Boeing Service Bulletin B787-81205-SB280018-00, Issue 001, dated April 17, 2014. If any software check fails, before further flight, do corrective actions, repeat the check, and do applicable corrective actions until the software passes the check.

(ii) Install new common interface control document 9.3 software and do software checks, in accordance with the Accomplishment Instructions of Boeing Service Bulletin B787-81205-SB420006-00, Issue 003, dated October 15, 2015. If any software check fails, before further flight, do corrective actions, repeat the check, and do applicable corrective actions until the software passes the check.

(2) For Group 2 airplanes as identified in Boeing Service Bulletin B787-81205-SB240063-00, Issue 002, dated June 7, 2016: Prior to or concurrently with accomplishing the actions required by paragraph (h) of this AD, install new common

interface control document 9.3 software and do software checks, in accordance with the Accomplishment Instructions of Boeing Service Bulletin B787-81205-SB420006-00, Issue 003, dated October 15, 2015. If any software check fails, before further flight, do corrective actions, repeat the check, and do applicable corrective actions until the software passes the check.

(j) Credit for Previous Actions

(1) For Group 1 and Group 3 airplanes as identified in Boeing Service Bulletin B787-81205-SB240063-00, Issue 001, dated December 22, 2015: This paragraph provides credit for the actions specified in paragraph (h) of this AD, if those actions were performed before the effective date of this AD using Boeing Service Bulletin B787-81205-SB240063-00, Issue 001, dated December 22, 2015.

(2) For Group 2 airplanes as identified in Boeing Service Bulletin B787-81205-SB240063-00, Issue 001, dated December 22, 2015: This paragraph provides credit for the actions specified in paragraph (h) of this AD, if those actions were performed before the effective date of this AD using Boeing Service Bulletin B787-81205-SB240063-00, Issue 001, dated December 22, 2015, and provided the actions specified in Boeing Service Bulletin B787-81205-SB420006-00, Issue 003, dated October 15, 2015, are done within 12 months after the effective date of this AD.

(k) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Seattle ACO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in

paragraph (l)(1) of this AD. Information may be emailed to: 9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(3) An AMOC that provides an acceptable level of safety may be used for any repair, modification, or alteration required by this AD if it is approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) that has been authorized by the Manager, Seattle ACO Branch, to make those findings. To be approved, the repair method, modification deviation, or alteration deviation must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

(4) AMOCs approved previously for AD 2015-09-07 are approved as AMOCs for the corresponding provisions of paragraph (g) of this AD.

(5) For service information that contains steps that are labeled as Required for Compliance (RC), the provisions of paragraphs (k)(5)(i) and (k)(5)(ii) of this AD apply.

(i) The steps labeled as RC, including substeps under an RC step and any figures identified in an RC step, must be done to comply with the AD. If a step or substep is labeled “RC Exempt,” then the RC requirement is removed from that step or substep. An AMOC is required for any deviations to RC steps, including substeps and identified figures.

(ii) Steps not labeled as RC may be deviated from using accepted methods in accordance with the operator’s maintenance or inspection program without obtaining approval of an AMOC, provided the RC steps, including substeps and identified figures, can still be done as specified, and the airplane can be put back in an airworthy condition.

(I) Related Information

(1) For more information about this AD, contact Stephen Oshiro, Aerospace Engineer, Systems and Equipment Section, FAA, Seattle ACO Branch, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6480; fax: 425-917-6590; email: Stephen.Oshiro@faa.gov.

(2) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminister Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; telephone 562-797-1717; Internet <https://www.myboeingfleet.com>. You may view this referenced service information at the FAA, Transport Standards Branch, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.

Issued in Renton, Washington, on July 28, 2017.

John P. Piccola, Jr., Acting Director,
System Oversight Division,
Aircraft Certification Service.

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